

UNIVERSITIES FOR DEVELOPMENT: LESSONS FOR ENHANCING
THE ROLE OF AGRICULTURAL UNIVERSITIES
IN DEVELOPING COUNTRIES

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by

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SUMMARY

Background

The Agency for International Development's (A.I.D.) Center for Development Information and Evaluation (CDIE) recently completed a 10-country study of developing country agricultural universities in relation to rapid changes in the global economy and the world scientific community. The findings of the study served as the basis for an A.I.D.-sponsored international conference on the future role of the agricultural university, held in Reston, Virginia, on October 2-8, 1988. The conference participants included university leaders from 25 developing countries and representatives from U.S. universities and donor agencies.

A significant number of Missions are initiating new projects in agricultural or rural university development. This paper, which identifies major problem areas and lessons learned from the study, is intended for those involved in project design and implementation of university development activities.

Major Findings

New strategies for university development should emphasize (1) education and research roles that include a major concern for policy and institutional innovation in the rural sector; (2) a major focus on issues of natural resource management, employment, and income generation; and (3) development roles that feature the university as a proactive agent of rural and agricultural change.

Changing to such strategies will require universities to

- Build strong linkages with critical constituencies and policy arenas to ensure that research and educational agendas are demand- rather than entirely supply-driven
- Develop a continuous process of strategic planning to enhance the university as a learning system
- Design strong, integrated programs and organizational structures as a countervailing influence against disciplinary fragmentation
- Adopt more holistic learning approaches
- Acquire greater autonomy from government controls in order to enhance university innovation in research and education

These changes represent a fundamental departure from more traditional university models, which primarily focus on the use of science and technology for increased agricultural production. The transition from an agricultural production focus to a more dynamic rural development emphasis will need to be supported through networks, institutions, and individuals worldwide who are developing and implementing new approaches for enhancing the relevance of university education and research.

1. INTRODUCTION

The Center for Development Information and Evaluation recently completed a 10-country study of developing country agricultural universities in relation to rapid change in the global economy and the world scientific community. This paper presents six problems and lessons learned that the study identified as major issues in university development.

2. PROBLEMS AND LESSONS LEARNED

2.1 Partial and Incomplete University Roles and Missions

Traditionally, many agricultural universities in developing countries have defined their primary mission as one of serving as a source of science and technology for increasing food and animal production. This emphasis alone, neglecting as it does major and critical features of the development process, has increasingly isolated the university from its environment.

Some universities have sought to break out of the narrow confines of a production technology focus and are beginning to address major resource and system domains, such as watershed management, soil conservation, integrated pest management, extension education, and farming systems. Finally, a few universities are beginning to address larger policy and institutional questions related to marketing, rural-urban interactions, agro-industry linkages, and employment and income generation.

Despite the need and desire to move to a more comprehensive mission and role, many universities are still burdened with a fixed set of ideas and assets that reflect a relatively narrow focus on production. Overcoming this legacy is a difficult struggle for many universities. To succeed they must begin to explore opportunities and to envisage future roles that are significantly different from just doing more of the same.

Lesson Learned: Focus on evolving a university mission that addresses the dominant technical, institutional, and policy issues in the rural sector.

The first priority of a university development program or project should be to institutionalize a process of evolving university missions that are responsive to major development conditions and to constituencies within the surrounding environment. Such an effort is needed because the traditional university model has tended to stress technology and production and to overlook development advances associated with institutional and policy changes in the rural sector.

In small, resource-poor countries, where there is only one

agricultural university or college, it is particularly important to explore alternative university models with missions and roles that go beyond an emphasis on production and the traditional "technical fix." Such models may allow these universities to exercise more leadership and to have a greater impact on their environment. In larger countries, where there are one or two national universities plus a number of regional or provincial universities, the opportunity arises for encouraging considerable innovation and diversity among these institutions. Without a concerted effort in this direction, there will be an undesirable tendency for regional and provincial universities to attempt to emulate the one or two national universities, rather than to define distinct, innovative programs that respond to their unique environments.

2.2 Weak Linkages to Constituencies and Policy Arenas

Many universities have only tenuous and intermittent linkages with important constituencies and policy arenas in their external environment. Leaders from major public and private sector agencies are seldom represented in university policy and agenda setting forums, and few institutional mechanisms are in place that would support the university in exercising leadership and influence in public and private sector actions at either the national or local level.

The absence of strong external linkages deprives the university of information and resources necessary for improving and sustaining its education and research programs. It serves to isolate the university from direct exposure to critical policy and operational issues that are at the heart of agricultural and rural development programs.

The Superior Institute of Agriculture (ISA) in the Dominican Republic is one outstanding example of an A.I.D.-assisted agricultural college that has very strong constituency support. The Institute was established by an association of civic-minded industrialists and professionals who have infused the college with a strong sense of community service. The members of the association serve on the board of ISA and have assumed a major leadership role in attracting external support for the college and in ensuring that the curriculum and research are responsive to local needs.

Lesson Learned: Promote strategic planning as a tool for agenda setting, management, and linkage development.

Strategic planning is the process of envisaging the future and developing the necessary programs and operations to achieve that future. Strategic planning involves identifying major external challenges, opportunities, and constraints and formulating programs to shape this environment. Finally, it includes mobilizing resources for translating plans into action. The aim is to allow the university to affect the environment and to learn and renew itself as it shapes and

evolves with the environment.

The major actors, public and private, who constitute the university's working environment should be drawn into the process of strategic planning. To do so allows the university to build relationships with important client groups who can serve as continuous sources of vital information and political support.

In the absence of strategic planning a university risks being pushed and pulled in a multitude of directions. Lacking a clear sense of mission, strategy, and role, the university is unable to cope with institutional drift, fragmentation, and inertia. Under these conditions, the university risks becoming less relevant to the country's development needs.

A significant number of the universities in both developing and developed countries are beset by these conditions, and several countries have launched initiatives to address this problem. Other universities are seeking to engage in similar actions but lack the strategic planning tools to do so.

To effectively address this critical need, efforts by international development agencies to support university development should feature a preeminent emphasis on technical assistance in strategic planning and management. Such activities should also include the training of university leaders and faculty in these management concepts and practices.

2.3 University Structures Have Inordinate Influence in Program Development

The tendency in many universities has been to allow the organizational structure to have a major influence on program development rather than the reverse. Thus, academic departments, based on conventional disciplinary specializations, often serve as the structural basis for program determination, rather than letting the needs determine the structure.

When programs are derived from structure rather than the reverse, they generally become an aggregation of courses and research projects that lack a coherent focus and direction. Educational courses and research projects proliferate, with programs becoming the means of serving the discrete and fragmented objectives of the structure.

Lesson Learned: Let university programs evolve into integrative structures.

Once a university mission is clarified, the next step is to create the action modalities -- that is, university programs and structures -- for achieving the mission. Different program options can be devised for any one particular goal. Some definitions will be more effective than others as heuristic devices to facilitate the generation and application of

knowledge to problem-solving situations. In brief, the process of defining and choosing from various program options should be undertaken with considerable thought and imagination.

Programs serve to identify the range of complex problem clusters that the university seeks to address in its education and research programs. The content of a program consists of strategies and activities that address these problems. In this sense programs integrate and link university activities to a developmental agenda. Programs become the means by which university leaders can effectively lead and manage the faculty.

Once a program is defined, a structure needs to be devised to support the program. Evidence of a strong program emphasis is usually found in universities with organizational structures based on interdisciplinary centers or institutes that have been created to address major development issues and problem areas from a more holistic perspective. These centers are frequently part of a larger matrix management structure that permits individual faculty members to divide their time among a number of programs and discipline-based departments.

There are a few universities with strong university centers or institutes. Although some universities are seeking to move in this direction, they find the transition difficult because of strong faculty identification with discipline-based structures. An exception is the following example.

The Center for Natural Resource Management and Environmental Studies at the Bogor Institute of Agriculture (IPB) in Indonesia has emerged as a national leader in addressing natural resource issues. The Center helped draft the national Environmental Management Act and is involved in a wide range of other legislative and policy development activities, in addition to conducting both training and education programs for degree students and members of external constituencies in the public and private sectors. These achievements can be attributed to the Center's success in drawing heavily on the Institute's numerous faculty for interdisciplinary research and training.

2.4 University Programs in Resource and Institutional Systems Have Had Limited Success

The design and conduct of interdisciplinary programs in managing and improving resource and institutional systems currently pose the most formidable challenge to university education and research. Whether in irrigation, soil conservation, agroforestry, coastal zone management, watershed management, pest management, or marketing and processing, these developmental functions, and others like them, involve a complex set of interactions among a multitude of actors at individual, community, and institutional levels.

University efforts to implement research and education programs designed to address systemic problems in rural and agricultural development are frequently only partially successful or not successful at all. A major obstacle to success has been a dependence on inappropriate learning methods. Traditional methods of education in the applied sciences employ reductionist and didactic learning modes that are usually practiced within the confines of classrooms and laboratories. These approaches do not equip the student with the skills needed to analyze complex social and economic systems, nor do they enable the student to develop competencies in formulating and managing strategies for improving system performance.

Lesson Learned: Place major emphasis on the application of learning and problem-solving methods appropriate for the system.

The improved management of resource and institutional systems requires a broad comprehension of the interactions among technical, institutional, and policy variables. It also requires an understanding of the intervention strategies available for achieving improvements in system performance and sustainability.

In recent years new concepts and methods for improving the rural system have been developed for use in the design of highly innovative agricultural university education and research programs. These concepts are largely derived from advances in cognitive and action theory and from the system and the organizational sciences. In research the application of these approaches impels the university to become more directly involved in the design and management of field-level, experimental strategies in rural development. Thus, whereas in the traditional agricultural university, the research station was the center of action, in the new approaches the station becomes but one element in a larger action arena that features the university as a source of technology, policy and institutional innovation in support of rural change.

The faculty at the Postgraduate College of Agriculture at Chapingo, Mexico, is organized around a field-based, strategic effort to effect rural change. Faculty work closely together in diagnosing farm conditions and in designing and managing institutional and policy changes in support of technology innovation. These activities are undertaken on the basis of a learn-by-doing strategy, by which the college, through subcontracting arrangements with local governments, assumes responsibility for the design, management, and replication of district rural development strategies.

In the area of education the new learning methods enable the university to shift from a pedagogy of teaching, with the student as passive recipient of facts, to a problem-based learning approach that requires the student to develop research and management competencies.

In Australia, Hawkesbury Agricultural College has developed a curriculum in which science education is complemented by a strong emphasis on developing student competencies in the application of systems and action-research approaches to problem-solving and the management of social and organizational change. These skills are acquired through a wide variety of education experiences, including programs in which students and faculty work with farmers, agribusiness, and government agencies in collaborative, field-based research and extension projects. This systems-based, action-learning approach is also being adopted in other profession-oriented institutions such as the Harvard Medical School.

2.5 University Innovation Is Hindered by Conservative and Overcentralized Government Policies

A number of universities have sought to explore new approaches to research and education but have frequently been stymied by an external environment, particularly conservative and overcentralized government policies that are unresponsive to such initiatives. Government leaders frequently hold very conservative views of the university as primarily a repository of knowledge to be passed on to students by the resident faculty. These narrow and static concepts serve as a major obstacle to university innovation.

Such conditions are compounded by the fact that the agricultural university or college is frequently a stepchild that falls between two parent agencies. A ministry of education usually has program and budgetary supervision of the agricultural university or college but may lack any real appreciation of the potential role of the university. In these cases, the ministry of agriculture, having little or no authority over the agricultural university, is likely to devote its resources to supporting its own independent research institutes.

Many universities are forced to operate within highly centralized policy environments in which major as well as minor decisions concerning curriculum change, program priorities, and finance are controlled by national agencies. This kind of over-regulation serves to reduce the university to a passive and reactive institution rather than to promote it to an institution that proactively seeks to mobilize its own resources and to adapt and shape its programs in response to changes within the environment.

Lesson Learned: Focus on transforming the role of government agencies from that of regulator to that of facilitator of university innovation.

Where the conditions just described prevail, both the ministry of education and ministry of agriculture need to be closely linked in expanding their vision of the role of the agricultural university. Greater exposure to new university

roles can be accomplished through visits, exchanges, and the development of collaborative educational and research linkages with out-of-country centers of university innovation. The new visions acquired through external contacts must then be translated into new policies at home.

To effectively address policy issues, long-term technical assistance should be provided to assist national agencies in decentralizing the programming process and transforming central agency roles from those of regulators to those of facilitators of university innovation and entrepreneurship.

From the start of its operations in 1968, the Institute of Agronomic and Veterinary Sciences (IAV) had a high degree of autonomy in daily operations and long-term planning through its mandate from the Government of Morocco. IAV leadership has been very assertive in preserving and enlarging this autonomy, thus encouraging the faculty to become more entrepreneurial in identifying and developing projects and funding from external sources. In brief, autonomy appears to be a necessary precondition for creative action and institutional vitality.

2.6 University Leaders Are Isolated From International Developments in Higher Education

For nearly two decades, there has been little cross-national institutional learning on the possible diversity of roles for the agricultural university. Many universities have not been able to sustain any cross-national linkages after the completion of the A.I.D. project support. Consequently, many have remained relatively isolated from international sources of new ideas. The absence of external contacts has served to foster intellectual inbreeding and in some cases a degree of ossification in university programs and structures.

Lesson Learned: Link the university to worldwide sources of the most advanced innovation in education and research.

Developing country leaders need to have continual access to the individuals, institutions, and networks worldwide that can provide the experience, vision, and new infusion of intellectual capital necessary to support university renewal. Facilitating learning among developing country universities is particularly important because most share similar environments and a set of tasks that universities in more advanced nations do not: the need to improve the lot of many very small and frequently impoverished resource-poor farmers who generally operate without adequate institutional and policy support.

One traditional mode of university development has involved "twinning" one U.S. university with the host country recipient university. Although appropriate in the past, this approach needs to be modified so that the recipient university can gain

access to the most relevant expertise worldwide.

The supply of institutional mechanisms for cross-national learning and support of university innovation and revitalization is lagging behind the need for services in this area. Most of the regional and international networks in agricultural and rural development are centered on exchanges of the latest developments in science and technology. Few, if any, of these networks are devoted to exploring new concepts and methods for enhancing the relevance of university missions and programs.

Some emerging structures in the developing and developed world are seeking to address issues of university reform. In the United States, a national task force, sponsored by the U.S. Department of Agriculture and the National Association of State Universities and Land Grant Colleges (NASULGC) and operating under the title of the National Agriculture and Natural Resources Curriculum project, has been active in developing concepts and tools to assist in curriculum reform for the land-grant agricultural colleges. The intellectual advances of this group have been inspired to a significant degree by experiences generated in other countries.

The National Agriculture and Natural Resource Systems project developed out of a concern that graduates of institutions of agricultural higher education needed better preparation in understanding and managing the complexities of agriculture in an environment of social, economic, political, and technological change. Sponsored and funded by the U.S. Department of Agriculture, private industry, and NASULGC, the project was started in the early 1980s and has been conducting workshops in the United States and abroad in the development of new curricula for agricultural higher education. The substantive basis of the project draws heavily on concepts from general systems theory, the management and organizational sciences, and cognitive and action research theories.

Beyond the U.S. network, a number of universities have much to offer in providing experience relevant to university innovation. These include, for example, Hawkesbury Agricultural College in Australia, the Postgraduate Agricultural College in Chapingo, Mexico, and the Institute of Agronomic and Veterinary Sciences (IAV) in Morocco.

Chapingo and IAV were former recipients of institutional development assistance (IAV is still supported by A.I.D. under contract with the University of Minnesota), and both are emerging as major regional training centers. Chapingo has been providing nondegree training to faculty and administrators from Africa and Latin America, and IAV is providing degree training for agriculturalists from Africa. The IAV faculty are also involved in consulting assignments in Africa. Hawkesbury Agricultural College is receiving increasing UNESCO support as a source for strengthening Asian initiatives in university renewal.

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